Enclosur of the International Preliminary Examination Report

CLAIMS:

Sub B1

1. A glass/plastic composite film, in particular for use in electronic components and devices such as displays, made of a glass film having a thickness of between 10 μm and 500 μm and a polymer layer applied on at least one of its side surfaces with a thickness of between 1 μm and 200 μm, especially between 1 μm and 100 μm, with the polymer layer being applied directly to at least one side surface, characterized in that on at least one side the optical retardation is not more than 20 nm.

2. A glass/plastic composite film as claimed in claim 1, characterized in that at least one side on its surface shows a waviness of less than 100 nm.

3. A glass/plastic composite film as claimed in claim 2, characterized in that at least one side shows a roughness R_T > 30 nm.

4. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 3~~, characterized in that both sides show on their surface a waviness of less than 100 nm and a roughness R_T of less than 30 nm.

5. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 4~~, characterized in that the glass thickness is 10 to 400 μm, preferably 10 to 200 μm and more preferably 10 to 100 μm.

6. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 5~~, characterized in that the thickness of the polymer layer is 2 to 100 μm, preferably 2 to 50 μm.

7. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 6~~, characterized in that the film also comprises the polymer layer on at least one edge.

8. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 7~~, characterized in that the polymer layer has a modulus of elasticity of $< 5{,}000$ N/mm^2, preferably of $< 2{,}600$ N/mm^2 and more preferably of $< 1{,}500$ N/mm^2.

9. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 8~~, characterized in that the transmission of the glass/plastic composite film is more than 90% of the uncoated glass film and the haziness caused by the polymer coating increases by less than 1%.

10. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 9~~, characterized in that the roughness of the surface is $R_T \leq 20$ nm, preferably ≤ 10 nm, the waviness of the surface is ≤ 80 nm, preferably ≤ 50 nm, and the optical retardation is not more than 15 nm.

11. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 10~~, characterized in that in permanent use the film is temperature-stable up to 130°, and up to 140°C in the case of short-term heating, preferably 180°C, more preferably 200°C.

12. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 11~~, characterized in that the polymer layer consists of a silicone

polymer, a sol-gel polymer, a polycarbonate, a polyether sulphone, a polyacrylate, a polyimide, a cyclo-olefine polymer or a polyarylate.

13. A glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 12,~~ characterized in that the glass film consists of a borosilicate glass, preferably an alkali-free borosilicate glass.

14. A method for producing a glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 13~~, with the following steps:
- the production of a glass film of a thickness of 10 to 500 μm in the down-draw process with a drawing speed of 2 to 12 m/s;
- pretreatment of the glass film surface;
- direct application of a polymer layer with a thickness of 1 to 200 μm in the liquid phase;
- serialization of the polymer-coated glass film.

15. A method for producing a glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 14~~, with the following steps:
- the production of a glass film of a thickness of 10 to 500 μm in the down-draw process with a drawing speed of 2 to 12 m/s;
- serialization of the glass film;
- pretreatment of the glass film surface;
- direct application of a polymer layer with a thickness of 1 to 200 μm in the liquid phase.

16. A method as claimed in claim 15, characterized in that the application of the polymer layer is performed by spinning or by spray spinning.

17. A method as claimed in claim 14 ~~or 15~~, characterized in that the application of the polymer layer is performed by casting or rolling or spraying or dipping.

18. A method as claimed in ~~one of the~~ claims 14 to 17, characterized in that at least one edge is coated in addition to the side surface.

19. A method as claimed in ~~one of the~~ claims 14 ~~to 18~~, characterized in that a glass film is produced with a thickness of 10 to 400 μm, preferably 10 to 200 μm, more preferably 10 to 100 μm, in the glass production line in the down-draw process.

20. A method as claimed in ~~one of the~~ claims 14 ~~to 19~~, characterized in that the coating leads to a polymer layer thickness of 2 to 100 μm, preferably 2 to 50 μm.

21. A method as claimed in ~~one of the~~ claims 14 ~~to 20~~, characterized in that the surface treatment is performed before the coating as UV radiation in an ozonic atmosphere or as a corona treatment or as flaming.

22. A method as claimed in ~~one of the~~ claims 14 ~~to 21~~, characterized in that after the coating, the polymer coating is cured with the help of UV radiation and/or is dried under the influence of heat.

23. A method as claimed in ~~one of the~~ claims 14 ~~to 22~~, characterized in that a silicone polymer, a sol-gel polymer, a polycarbonate, a polyether sulphone, a polyacrylate, a polyimide, a cyclo-olefine copolymer or a polyarylate are applied as a polymer.

24. A method as claimed in ~~one of the~~ claims 14 ~~to 23~~, characterized in that a borosilicate glass, preferably an alkali-free borosilicate glass, is used for the production of the glass film.

25. The application of the glass/plastic composite film as claimed in ~~one of the~~ claims 1 ~~to 13~~ for the production of electronic components and optoelectronic devices, in particular on the basis of liquid crystals or light-emitting layers.